



PTT Global Chemical Public Company Limited

Management Discussion and Analysis Q1/2019



MEMBER OF
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Sustainability Indices**
In Collaboration with RobecoSAM



**WORLD MEMBERS IN CHEMICALS SECTOR
FOR 6th CONSECUTIVE YEAR**

Executive Summary

In Q1/2019, PTT Global Chemical Public Company Limited (“the Company”) had sales revenue of Baht 112,783 million, decreased by 7% and 12% from Q1/2018 and Q4/2018 respectively, resulted from a decline in Dubai crude oil price since late of last year that effected to soften overall products price. The Company reported net profit of Baht 6,443 million (1.43 Baht/Share) decreased by 48% from Q1/2018 but increased by 59% from previous quarter .

The company has softened core operating profit comparing with Q4/ 2018 mainly from weaker product price. Refinery business had a decreased gross refinery margin (GRM) at 3.22 USD per barrel, which effect from slowdown in global economy. Aromatics business has dropped in margin, BTX P2F at 206 USD per ton and translated to having adjusted EBITDA margin at 8% , because of concerning in new capacity in the region. For Olefins and Polymer business was pressured by US-China trade war situation but product price is gradually improved since late of last year. Hence, the adjusted EBITDA margin of Olefins & derivatives has slightly increased to 18% in this period. For performance of subsidiary companies, the performance was softened from a lesser amount of selling volume of Ethylene Oxide business and Phenol business from planned maintenance shutdown, also soften MEG and Phenol spread. Hence, the company adjusted EBITDA in Q1/ 2019 was Baht 9,768 million, decreased by 20% from Q4/2018. Beside these, Share of Profit from Investments (attributable to Owners of the Company) was Baht 1,186 million, decreased by 17% from Q4/2018, mainly from reducing in Acrylonitrile (AN) business. While the performance of bio-plastic business that the company operates through Natureworks in the United States was improved. In this period, the company realized foreign exchange gain by Baht 438 million from appreciation of Thai baht and had Stock gain net NRV by Baht 1,426 million from increasing of Dubai crude oil in the period. The company had Baht 6,443 million in net profit, increasing 59% from Q4/2018.

Table 1 : Performance Summary

(Unit: Million Baht)	Q1/2018	Q4/2018	Q1/2019	YoY % +/-	QoQ % +/-
Sales Revenue	120,939	128,874	112,783	-7%	-12%
EBITDA	16,308	5,747	11,194	-31%	95%
EBITDA Margin (%)	13%	4%	10%	-3%	6%
Share of profit of investments in JV and Associates	2,024	1,426	1,186	-41%	-17%
Net Profit	12,388	4,060	6,443	-48%	59%
EPS (Baht/Share)	2.75	0.90	1.43	-48%	59%
Adjusted EBITDA*	16,319	12,271	9,768	-40%	-20%
Adjusted EBITDA Margin (%)	13%	10%	9%	-4%	-1%

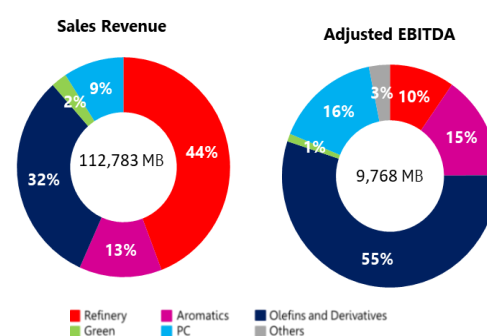
Note: * Adjusted EBITDA refers EBITDA excluding impact of oil stock value

Table 2 : Adjusted EBITDA Margin

% Adj. EBITDA Margin	Q1/2018	Q4/2018	Q1/2019
Business Unit :			
Refinery	5	4	2
Aromatics	6	9	8
Olefins and Derivatives	32	17	18*
Green	5	8	4
Performance Materials and Chemicals	15	14	15
Average	13	10	9

Note: *If included PTA, PET %Adj. EBITDA Margin is 15%

Q1/2019



Performance Analysis by Business Unit

Refinery Business Unit

Table 3 : Crude Price & Petroleum Product Spreads

(Unit: USD per barrel)	Q1/2018	Q4/2018	Q1/2019	YoY % +/-	QoQ % +/-
Dubai Crude Oil	63.88	67.42	63.53	-1%	-6%
Gasoline-Dubai	13.73	4.70	3.70	-73%	-21%
Jet-Dubai	16.11	15.64	12.97	-19%	-17%
Diesel-Dubai	14.76	14.78	12.79	-13%	-13%
Fuel Oil-Dubai	-4.96	1.32	0.52	111%	-60%

Crude oil market situation in Q1/2019 adjusted downward from Q1/2018 and Q4/2018 1% and 6% , respectively as affected by political risk factors and expected world economic slowdown overwhelmed by the United States and China trade war. Dubai crude oil price was gradually increased from the ending price of year 2018 at 52.85 USD per barrel followed by a decrease in supply as a result of the collaboration among petroleum producers from both OPEC and non-OPEC members that acted in compliance to reduce their production; along with the United States sanctions against Iran and the political unrest in Venezuela, these factors had contributed toward average Dubai crude oil price in Q1/2019 at 63.53 USD per barrel and ending price at 67.20 USD per barrel.

For the Petroleum products spread over Dubai crude oil price had decreased from Q1/2018 and Q4/2018, while Dubai crude oil price continuously recovered since the end of 2018. Average Diesel over Dubai crude spread was at 12.79 USD per barrel; the spread decreased due to new supply in the region, more export quota from China, and the expectation of world economic slowdown from the slower growth in GDP. The Fuel Oil over Dubai crude spread was at 0.52 USD per barrel, increased from Q1/2018 from the low level of inventory, a decrease in supply as a result of the United States sanctions against Iran, and lower production rate owing to political issues in Venezuela. However, the Fuel Oil over Dubai crude spread decreased from Q4/2018 due to the lower bunker activities from the concerns about world economic.

Table 4 : Gross Refinery Margin

(Unit: USD per barrel)	Q1/2018	Q4/2018	Q1/2019	YoY % +/-	QoQ % +/-
Market GRM	6.15	5.52	3.22	-48%	-42%
CDU GRM	6.46	5.82	2.96	-54%	-49%
CRS GRM	4.82	4.09	4.48	-7%	10%
Hedging Gain/(Loss)	-0.10	0.31	-0.11	-11%	-136%
Stock Gain/(Loss) Net NRV	-0.01	-8.43	2.73	>200%	132%
Accounting GRM	<i>6.04</i>	<i>-2.61</i>	<i>5.84</i>	<i>-3%</i>	<i>> 200%</i>
Adjusted EBITDA (MB)	2,522	2,350	949	-62%	-60%
Adjusted EBITDA (%)	5%	4%	2%	-3%	-2%
Utilization Rate	102%	102%	102%	0%	0%

Refinery business in Q1/2019 had utilization rate at 102% equal to Q1/2018 and Q4/2018 while almost all petroleum products spread over Dubai crude oil price had been decreased from both quarters, affected to soften market GRM in this quarter to report at 3.22 USD per barrel. According to

an increase of Dubai crude oil price along this quarter, the Company realized stock gain with net realizable value together at 2.73 USD per barrel while had hedging loss at 0.11 USD per barrel. These resulted in Refinery business accounting GRM of 5.84 USD per barrel, decreased from Q1/2018 at 6.04 USD per barrel but increased from previous quarter at -2.61 USD per barrel. In this quarter, Refinery business had Adjusted EBITDA of Baht 949 million and Adjusted EBITDA Margin at 2%.

Aromatics Business Unit

Table 5 : Aromatics Product Prices and Spreads over Condensate

(Unit: USD per ton)	Q1/2018	Q4/2018	Q1/2019	YoY % +/-	QoQ % +/-
Condensate	573	579	535	-7%	-8%
Paraxylene (TW)	963	1,141	1,080	12%	-5%
Paraxylene(TW)-Condensate	391	562	545	40%	-3%
Paraxylene (FECP)	953	1,148	1,054	11%	-8%
Paraxylene(FECP)-Condensate	381	569	519	36%	-9%
Benzene (Spot Korea)	891	694	590	-34%	-15%
Benzene-Condensate	318	115	55	-83%	-52%
Naphtha-Condensate	8	-11	-16	<-200%	-44%

Paraxylene (PX)

In Q1/2019, Paraxylene (FECP) spread over Condensate price was averaged at 519 USD per ton, increased by 36% from Q1/2018 but decreased by 9% from Q4/2018. In Q1/2019, the Paraxylene market was supported by a favorable demand from downstream business such as Polyester. In Q1/2019, the spread of Paraxylene over Condensate price slightly declined from Q4/2018 despite an increasing supply from the start utilizing of new capacities in China since Q2/2019.

Benzene (BZ)

In Q1/2019, Benzene spread over Condensate price was averaged at 55 USD per ton, declined from both Q1/2018 and Q4/2018 by 83% and 52% respectively. Benzene spread over Condensate price in Q1/2019 decreased from Q4/2018 due to the lower demand from maintenance shutdown of downstream plants in this region such as Styrene Monomer and Phenol, together with a reportedly high inventory in China, thus pressured toward Benzene spread in this quarter.

Table 6 : Aromatics market P2F

(Unit: USD per ton)	Q1/2018	Q4/2018	Q1/2019	YoY % +/-	QoQ % +/-
Market P2F	166	238	206	24%	-14%
Hedging Gain/(Loss)	0.2	-19.9	-10.6	<-200%	47%
Stock Gain/(Loss) net NRV	0.1	-97.6	1.9	>200%	102%
Accounting P2F	167	121	197	18%	63%
Adjusted EBITDA** (MB)	1,125	2,220	1,481	32%	-33%
Adjusted EBITDA (%)	6%	9%	8%	2%	-1%
Utilization Rate (%)	91%	93%	94%	3%	1%

Aromatics business in Q1/2019 had BTX utilization rate at 94%, higher than Q1/2018 and Q4/2018. In term of product spread, Paraxylene spread over Condensate remained high at 519 USD per ton while Benzene spread over condensate significantly dropped to 55 USD per ton, resulted in Market P2F per ton BTX at 206 USD per ton, increased by 24% from Q1/2018 but decreased by 14% from previous quarter. Aromatics business had Adjusted EBITDA in this quarter at Baht 1,481 million with Adjusted EBITDA Margin at 8%. Furthermore, the Company had realized stock gain with net realizable values of 1.9 USD per ton as a consequence of higher condensate price, follow crude oil price trend. Nevertheless, it realized hedging loss at 10.6 USD per ton, therefore Accounting P2F in this quarter was stated at 197 USD per ton.

Olefins and Derivatives Business Unit

Table 7 : Prices and Spreads of Olefins and Derivatives

(Unit: USD per ton)	Q1/2018	Q4/2018	Q1/2019	YoY % +/(-)	QoQ % +/(-)
Naphtha (MOPJ)	581	568	519	-11%	-9%
Ethylene (SEA)	1,243	883	928	-25%	5%
Propylene (SEA)	987	936	839	-15%	-10%
HDPE	1,379	1,207	1,093	-21%	-9%
HDPE-Naphtha	798	639	573	-28%	-10%
LLDPE	1,241	1,098	1,037	-16%	-6%
LLDPE- Naphtha	660	530	518	-22%	-2%
LDPE	1,274	1,102	1,046	-18%	-5%
LDPE- Naphtha	694	534	526	-24%	-1%
PP	1,270	1,215	1,127	-11%	-7%
PP-Naphtha	689	647	608	-12%	-6%
MEG (ACP)	1,142	1,045	833	-27%	-20%
MEG-0.65 Ethylene	333	471	230	-31%	-51%

For Polyethylene in Q1/2019, average HDPE price was at 1,093 USD per ton, decreased by 21% from Q1/2018 and 9% from Q4/2018, while LLDPE price and LDPE price declined in the same direction. In Q1/2019, Polyethylene price was still pressured by concern over the impact of trade war. For MEG (ACP), the price decreased 27% from Q1/2018 and 20% from Q4/2018 despite a high demand and high utilization rate in downstream businesses of Polyester and PET, an expectation of new supply, high level of inventory in China, and effects from trade war outweighed the price.

Table 8 : Adjusted EBITDA of Olefins and Derivatives

(Unit: Million Baht)	Q1/2018	Q4/2018	Q1/2019	YoY % + /(-)	QoQ % + /(-)
Adjusted EBITDA (MB)	10,526	5,522	5,389*	-49%	-2%
Adjusted EBITDA (%)	32%	17%	18%**	-14%	1%
Utilization Rate Olefins (%)	101%	101%	101%	0%	0%
Utilization Rate Polymer (%)	105%	94%	100%	-5%	6%

Note: *Including PTA and PET business performance
 **If included PTA, PET %Adj. EBITDA Margin is 15%

In Q1/ 2019, Olefins plants had average utilization rate at 101% , remained the same as Q1/2018 and Q4/2018. For Polymer business had utilization rate at 100%, declined from Q1/2018 at

105% but increased from Q4/2018 at 94% while MEG business had 69% utilization rate, dropped from both Q1/2018 and Q4/2018 from planned maintenance shutdown.

The polyethylene price situation was softening due to the impact from the US international trade negotiations with China that have no conclusion yet and affected to the concerns of the economic conditions that might affected to future consumption, causing the price of polyethylene and MEG to decrease from Q1/2018 and Q4/2018. However, the result of no maintenance shutdown of polyethylene plant in this quarter, together with the full capacity recognition of the LLDPE2 plant this year, resulted in an increase in polyethylene sales volume which helped to reduce the impact of lower polyethylene prices. While the ethylene oxide business had a lower performance due to lower sales volume and lower MEG spread.

Olefins and Derivatives business had Adjusted EBITDA of Baht 5,389 million, decreased by 49% and 2% from Q1/2018 and Q4/2018 respectively, accounted for Adjusted EBITDA Margin at 18%, slightly increased from previous quarter. For Olefins intake volume in this quarter, 86% was Gas and 14% was Naphtha, a decrease in Gas consumption in this quarter was partly due to the impact in the beginning of the year in which the gas production was reduced in the Gulf of Thailand due to the impact of the tropical storm and the planned maintenance shutdown of gas separation plants.

Table 9 : Adjusted EBITDA

Adjusted EBITDA (Million Baht)	Q1/2018	Q4/2018	Q1/2019	YoY % +/-	QoQ % +/-
Business Unit :					
Refinery	2,522	2,350	949	-62%	-60%
Aromatics	1,125	2,220	1,481	32%	-33%
Olefins and Derivative	10,526	5,522	5,389	-49%	-2%
Green	205	272	110	-46%	-60%
Performance Materials and Chemicals	1,754	1,551	1,532	-13%	-1%
Services and Others	187	356	307	64%	-14%
Adjusted EBITDA (Million Baht)	16,319	12,271	9,768	-40%	-20%

Operating Performance

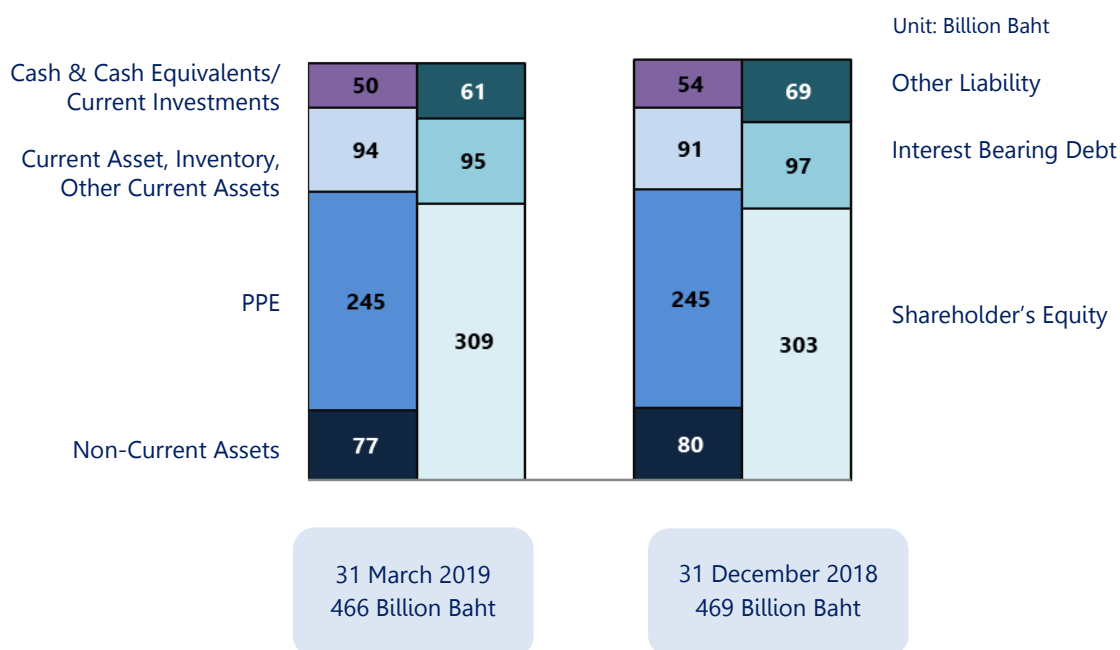
Unit : Million Baht		Q1/2018	Q4/2018	Q1/2019	YoY % + /(-)	QoQ % + /(-)
	Sales Revenue	120,939	128,874	112,783	-7%	-12%
	Feedstock cost	(92,119)	(102,054)	(89,178)	-3%	-13%
	Product to Feed Margin	28,820	26,820	23,605	-18%	-12%
1	Variable Cost	(6,774)	(7,012)	(7,459)	10%	6%
2	Fixed OH	(3,722)	(4,390)	(3,914)	5%	-11%
3	Stock Gain/(Loss) and NRV	(11)	(6,524)	1,426	>200%	122%
4	Gain/(Loss) on Hedging Commodity	(56)	(225)	(244)	<-200%	-8%
5	Other Revenue	992	1,236	1,106	11%	-11%
6	SG&A Expenses	(2,941)	(4,158)	(3,326)	13%	-20%
	EBITDA	16,308	5,747	11,194	-31%	95%
7	Depreciation & Amortization	(4,701)	(5,048)	(5,009)	7%	-1%
8	Gain on bargain purchase	0	1,355	0	0%	-100%
	EBIT	11,607	2,054	6,185	-47%	>200%
9	Net financial expense	(501)	(483)	(496)	-1%	3%
10	FX Gain(Loss)	669	252	438	-35%	74%
11	Share of gain/(loss) from investment	2,024	1,426	1,186	-41%	-17%
12	Corporate Income Tax	(1,237)	1,061	(719)	-42%	168%
13	Net Profit after Tax	12,562	4,310	6,594	-48%	53%
	Profit/(loss) attributable to:					
14	Non-controlling interests	174	250	151	-13%	-40%
15	Owners of the Company	12,388	4,060	6,443	-48%	59%
16	Adjusted EBITDA*	16,319	12,271	9,768	-40%	-20%

Note:

* Adjusted EBITDA = EBITDA excluded Stock Gain/Loss and NRV.

Comparing Q1/2019 to Q1/2018, Sales Revenue decreased by 7% from soften product price, follow crude oil price trend even sales volume was increased as a result of higher utilization rate of Olefins and derivatives. Although, the overall sales volume has increased but Product to Feed Margin has dropped from decreasing in refinery GRM as well as Aromatics product price and polyethylene price. In this quarter, the company has realized new business of PTA and PET performance, which leads to increasing in business operating expense. Variable cost, SG&A and Fixed OH have increased from Q1/2018 by 10%, 13% and 5%, respectively. However, by excluding the effect from new business, Variable cost and SG&A expense have increased by 2% and 7%, respectively, which in the same trend as sales volume. In contrast, Fixed OH will decreased by 3%. The reducing in the expense is based on cost control policy of the company. While Share of Profit from Investments (attributable to Owners of the Company) decreased by 41% from Q1/2018 as a consequence of softening performance of Acrylonitrile (AN) and less FX gain.

Statement of Financial Position



As of March 31, 2019, the Company had Total Asset of Baht 465,970 million, decreased by Baht 3,285 million from December 31, 2018, mainly reasoned from an increase in other current assets by Baht 2,856 million and a decrease in other non-current assets by Baht 2,831 million which resulted from a decrease in long term investment by Baht 4,150 million from selling investments in available-for-sale securities to support company operation. While the investment in associates and joint venture companies increased by approximately Baht 1,240 million. The Company had total Shareholders' Equity of Baht 309,194 million, increased by Baht 5,712 million from 31 December 2018.

The Company had Cash and Cash Equivalents and Current Investments decreased by Baht 3,527 million from the end of last year. There was cash flow from operation of Baht 11,201 million while cash flow for investment was Baht 4,498 million, mainly invested for the purchase of property, plant and equipment and intangible assets on the projects such as Olefins Reconfiguration, Propylene Oxide by GC Oxirane and Polyols & PU System by GC Polyols and short-term loan for GPSC of Baht 8,000 million. However, there was cash received from the sale of available-for-sale securities of Baht 9,744 million and cash received from the sale of current investments of Baht 3,083 million and the cash flow from financing decreased by Baht 1,957 million mainly from interest payment to financial institutions and hire-purchase contracts totaling Baht 1,328 million and repayment of short-term and long-term loans totaling Baht 629 million. Therefore, as of March 31, 2019 the Company had total Cash and Cash Equivalents of Baht 41,758 million, including company investment of Baht 10,865 million, the Company virtually had totaling cash of Baht 52,623 million. Additionally, the Company reported net interest bearing debt to equity was 0.15 times. Net interest bearing debt to EBITDA was 0.85 times.

Key Financial Ratios

Financial Ratios	Q1/2018	Q4/2018	Q1/2019
Current Ratio (Times)	2.28	1.95	2.08
EBITDA to Sales Revenue (%)	13.59%	11.30%	10.48%
Net Profits to Sales Revenues (%)	8.62%	7.77%	6.73%
Return on Total Assets (%)	11.24%	10.36%	8.85%
Return on Equity (%)	14.12%	14.04%	13.54%
Interest Bearing Debt to Equity (Times)	0.32	0.32	0.31
Net Interest Bearing Debt to Equity (Times)	0.12	0.14	0.15
Net Interest Bearing Debt to EBITDA (Times)	0.60	0.74	0.85

Remarks :

Current Ratio	=	Current Assets divided by Current Liabilities
EBITDA to Sales Revenue*	=	EBITDA divided by Sales Revenue (Average 12 months)
Net Profit to Sales Revenue*	=	Profits attributable to Owners of the Company to Sales Revenue (Average 12 months)
Return on Total Assets	=	Earnings before Interest and Tax divided by Average Total Assets
Return on Equity	=	Profits attributable to Owners of the Company divided by Average Equity attributable to Owners of the Company
Interest Bearing Debt to Equity	=	Interest Bearing Debt divided by Shareholder's Equity
Net Interest Bearing Debt to Equity	=	Interest Bearing Debt net Cash and Cash Equivalent and Current Investments divided by Shareholder's Equity
Net Interest Bearing Debt to EBITDA	=	Interest Bearing Debt net Cash and Cash Equivalent and Current Investments divided by EBITDA

Market and Business Outlook in 2019

For the global oil outlook in remaining period of the year, average Dubai crude oil price is expected to be 65-70 USD per barrel. The International Energy Agency (IEA) had estimated the crude oil demand in 2019 at 100.6 million barrels per day, increased by 1.4 million barrels per day. However, this is subject to uncertainties from the United States and China trade war which will impact the economic situation along with the concern on global economy which can pressure the oil demand. Although the OPEC petroleum producers and Russia are cooperating to restrain the petroleum production, the increasing production of shale oil in the United States can put pressure on the crude oil price

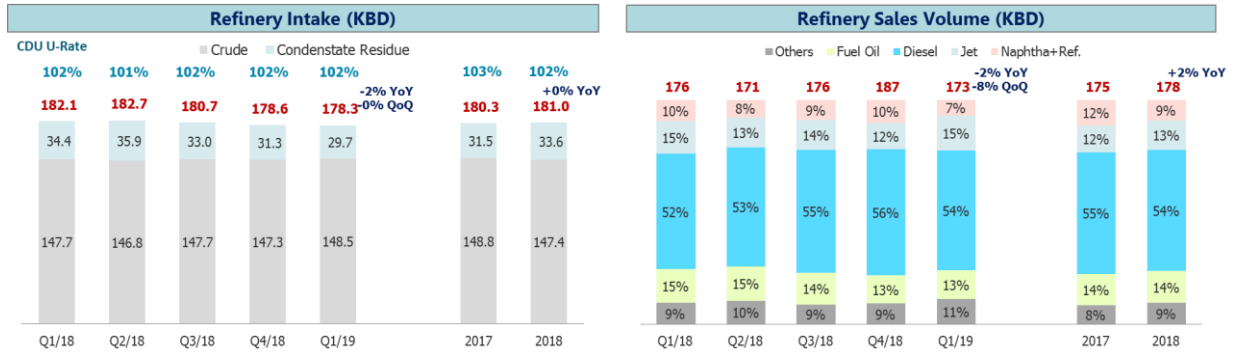
For Petroleum product, the Company anticipates that Diesel spread over Dubai crude oil price will be averaged around 14.1 USD per barrel, contributing by International Marine Organization (IMO) regulation on limiting the Sulphur content in fuel oil used on board ships; it is expected that there will be more demand on Diesel for blending in order to comply for the Sulphur content. The Fuel Oil spread and the Gasoline spread over Dubai crude oil price are expected to be -3.9 and 7.5 USD per barrel, respectively. The Fuel Oil will be affected by the IMO regulation and will imminently recognize the impact by 2H/ 2019 while Gasoline is still pressured by a high inventory level and increasing production in North America. As for Refinery's utilization rate, it will be operated around 86% , resulting from the planned maintenance shutdown in Q4/2019 for 2 months.

For Aromatics product, Paraxylene spread over Naphtha price is expected to be 352 USD per ton. Despite the new supply from China, the demand from Fiber and Filament industries, Purified Terephthalic Acid (PTA), and PET bottle resin are expected to be the growth potential. For Benzene spread over Naphtha price, it is expected to be 68 USD per ton. Benzene demand is expected to increase from the higher demand of Styrene Monomer and Phenol. As for Aromatics' utilization rate, it will be operated around 90% from the planned maintenance shutdown in Q2/2019 for 2 months for production efficiency improvement for Aromatics 1.

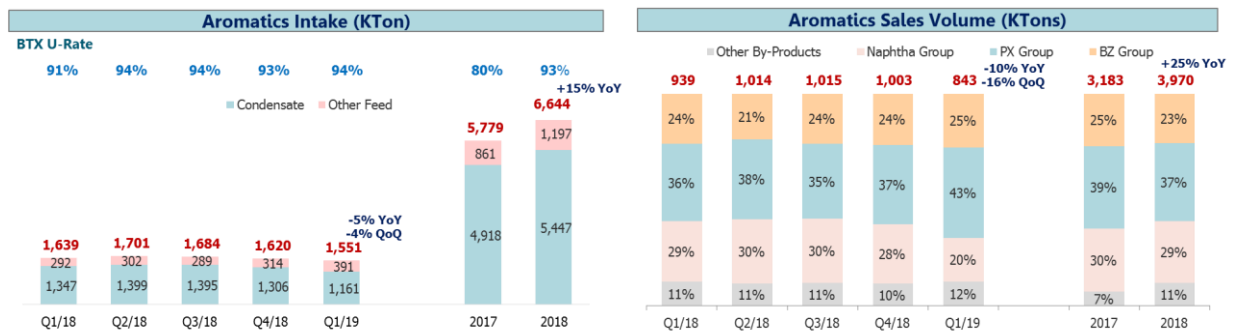
The outlook for Olefins and Derivatives product has a stronger potential follow by higher crude oil price. The product price depends on the resolution of the United States and China trade war which remains uncertain. And more supply from the United States and in SEA is also expected in this region which makes average HDPE price to be around 1,117 USD per ton. MEG outlook is expected to soften from 1H/2019 as there will be new supplies from the United States, China, and SEA enter this region. However, it is still supported by the increasing demand from downstream businesses, particularly the Polyester in China. The Company expects the average MEG (ASP) price to be around 637 USD per ton. In 2019 Olefins plants utilization rate will be around 102% and Polymers plants will be around 104%.

Appendix

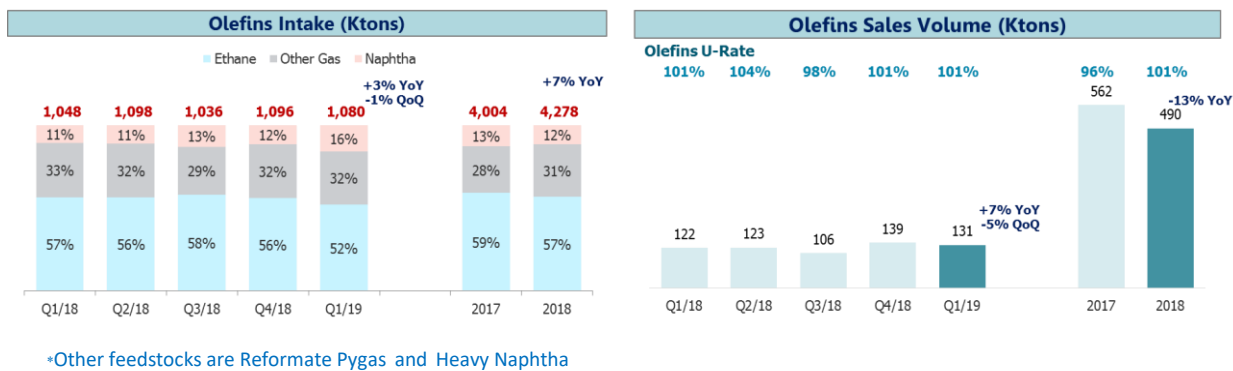
Graph 1: Refinery Intake and Sales Volume



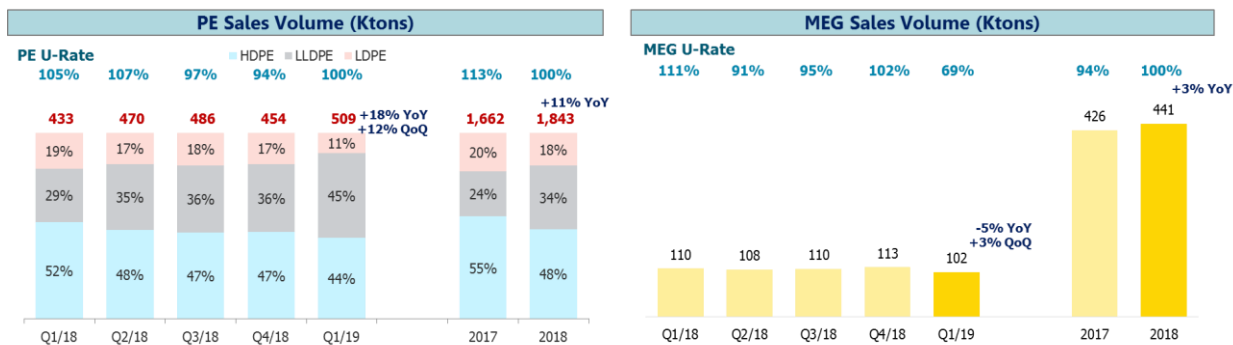
Graph 2: Aromatics Intake and Sales Volume (BTX)



Graph 3: Olefins Intake and Olefins and Derivatives Sales Volume



*Other feedstocks are Reformate Pygas and Heavy Naphtha



Planned Maintenance Shutdown Schedule 2019

Plant		2019											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
OLE	Cracker												
POL	HDPE			20 HDPE2				15 HDPE1					
	LDPE				12						15		
	LLDPE I												
	LLDPE II												
	PS									10 HIPS			
										15 GPPS			
EOB	TOCGC		43										
PHN	Phenol I					22							
	Phenol II			12									
	BPA												
REF	Refinery										54		
ARO	Aromatics I					53							
	Aromatics II												